Introduction

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What happens if we start to think *ethnographically through* the technosocial hybrids that have become the almost unquestioned terrain of science studies since the 1990s? Contrary to recent critiques of the human-centred social sciences, nonhuman worlds have long been a concern within anthropology. Kula armbands, ghosts, manioc or cattle, to mention just a few, have significantly shaped the science of humanity. That being said, the origin of this special issue is in more mundane *things*, physical objects such as medical instruments and agricultural machines. Our common editorial ground is a shared interest in entities of kinds that generate few words. While Morita had fairly involved conversations with Thai engineers, and Mohácsi talked days and hours with patients, nurses, and researchers of diabetes in Japan and Hungary, when it came to our central concern with how machines in the factory and bodies in the hospital were actually being assembled, narratives and texts proved to be of little help. Rather than having a purely technical interest in instruments and machines per se, however, our series of ethnographic explorations into the complexity of this relationality was triggered by dissatisfaction with the often taken-for-granted narrative (interpretive, symbolic, textual etc.) and epistemological connectedness between human and non-human worlds. Directly related to the present volume, two themes of our collaboration are *comparison* and *translation*.

We have been fascinated with the fact that instruments and machines, while they are nonhuman entities in themselves, can sometimes turn into dynamic tools for contrasting nonhuman with—more or less—human values. This attraction lead us to the realisation that acting with nonhuman entities, among other things, is a productive way to reflect on the anthropological method of comparison as we argued in an earlier collection, *Traveling Comparisons*. It is by comparing these seemingly incommensurable worlds across scales and worlds apart that people, bodies and machines penetrate into each others' realms in the daily lives of, for example, whale activists, robot freaks or organ donors (Mohácsi & Morita 2013).

Thus, anthropological comparison becomes concerned with the ontological fluidity of human and nonhuman realms. To make sense of this constant mobility, we considered the process of translation. Our next edited volume, *Translational Movements*, redirected the notion of translation from communicative act—that, in the anthropological parlance, is supposed to take place between humans (researchers and informants)—to lateral relationship between the empirical (spatial and material) and the conceptual that involves all kinds of nonhuman entities (Morita & Mohácsi 2013). Attending to the artificiality—or thingness—of translations, we argued, forces one to reflect on the irreducible relations between ethnography and its objects[1] and the endless mediations between natures and cultures.

These methodological explorations have more or less brought us back to where we started, although we have gained something on the way that we may call a recursive twist. We are back to practice, ethnographic practice, where concepts cease to be pure analytical tools, and become actions in themselves. Our experiments taught us that when we start acting with nonhuman entities, we find ourselves acting with concepts at the crossroads: these concepts constitute an attempt to articulate the continuities and differences between human and nonhuman worlds. Fortunately, we are not alone here; these crossroads are populated with other, often much more programmatic conceptual movements, of which we will mention only three here: actor-network theory, multispecies ethnography, and what nowadays is often referred to as the ontological turn at the intersection of anthropology and science studies.

[1] This topic is taken up by Nakazora's and Myers' articles (both in this issue).

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Actor-network theory (Paris/Amsterdam/Lancaster) is probably the most well-known of the posthumanist challenges to Euro-American assumptions about the straightforward separation of nature/culture, technological/social or human/nonhuman realms. Three decades of debate, wars and ceasefires have left ANT more as a placeholder than a method or a theory. Even so, it is probably fair to say that, in ANT, the insistence on the agency of quasi-objects (hybrids) and the material-semiotics of translation have together succeeded in showing how human and non-human worlds, in practice at least, are intertwined through a continuous 'netting, lacing, weaving, twisting of ties' (Latour 1996:3). ANT has not only fertilised existing discussions around such core anthropological issues as kinship (e.g. Thompson 2005), cosmology (e.g. Pedersen 2012), and exchange (e.g. Maurer 2005), it has also provided a language to both follow and account for multiple enactments of reality.[2]

The notion of *the ontological turn (Rio de Janeiro/London/Copenhagen)* in anthropology is, in a sense, an extension of this insistence on multiple realities, a turn that carries forward (some of the) the conceptual experiments of, among others, Eduardo Viveiros de Castro and Marilyn Strathern. The claim of this agenda—first laid down in the edited volume *Thinking through Things*—is that once we learn to take things seriously, the links between human and nonhuman realms emerge neither in material nor in representational forms, but rather in a methodological multitude through 'engagements with things as conduits for concept production' (Henare et al. 2006:7). These arguments have been around for a while now and provided fertile ground for exploring ideas across anthropology and science studies (see Carrithers et al. 2010; Gad et al., in this issue). As others have further argued, such an ontological turn might be a positive answer to the epistemological critiques that have characterised anthropology since the 1980s and a return to questions of alterity and difference (Kasuga 2011).

Multispecies ethnography (Santa Cruz/Boston), which has emerged, in conversation with the scholarly work of Donna Haraway, at the intersection of environmental studies, STS, and animal studies, is another attempt to push nonhuman creatures into the centre of anthropological discourse. The authors of the programmatically titled special issue of *Cultural Anthropology* (Kirskey & Helmreich 2010) have investigated the assemblages of laboratories, ethical and market regulations, and ecosystems through which viruses, corals, and insects emerge; in doing so they have explored how knowledges about nonhuman

[2] For a critical reappraisal of ANT, see Ishii's article (in this issue).

organisms are entangled with the experiences of living, communicating, and even sensing with them (see also Suzuki and Myers, both in this issue). Facts of life, the argument goes, emerge through biochemical and ecological performativity suggesting that humans have never been only-humans, but something messier. This self-reflexive attention to other species resonates well with Eduardo Kohn's call for an 'anthropology beyond the human' (Kohn 2007), while, at the same time, bringing new perspectives into the dialogue between anthropology and science studies.

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Actants, things, and species: these are the core concerns of the three conceptual movements outlined in the previous section. The list, of course, is far from complete, but these three concerns help us to follow the partial connections of the six articles assembled in this collection. All of these texts, in one way or another, are related to these conceptual movements and, through these relations, they are related to each other as well. The authors approach these issues from diverse backgrounds both in an epistemological and in an ontological sense. They represent different disciplinary approaches as well as different worlds in the making. Four of the articles included here (Ishii, Myers, Nakazora, Suzuki) were presented in a workshop, with the same title as this special issue, held in the—somewhat ironically named—Institute for Research in the Humanities at Kyoto University in September 2013. The other two texts provide important conceptual links to social anthropology (Strathern) and to the ontological turn (Gad et al.).

They focus on a number of key issues. What disciplinary boundaries have to be crossed or permeated to reveal otherwise unattended links between human and nonhuman ways of acting in the world? What are the distinguishing features of these analytic experimentations when compared to earlier work in anthropology and beyond? How do the variety of posthumanist trends differ from and relate to each other? The aim of this collection, thus, is to reflect on these issues through acting with five distinct kinds of nonhuman entities: cells, animals, plants, spirits and concepts.

The opening article by Christopher Gad, Casper Bruun Jensen, and Brit Ross Winthereik is a translation from the Danish original, which was published as a response in a debate on ontological multiplicity. Significantly, a core element of the authors' posthumanist position in favour of the multiple worlds argument is that 'realities are practically and materially (not simply socially or discursively!) constructed by a multiplicity of things' (Gad et al, in this issue, 11).

The next four articles, each in its different way plays out this posthumanist argument through case studies that describe the inferences between human and nonhuman worlds. Miho Ishii follows ritual relations of gift exchange in Karnataka, India, in which spirits, humans and machines perform each other. She suggests that such rituals break the seemingly endless extension of technosocial networks. Gift exchanges also appear in Moe Nakazora's essay. Writing about the knowledge practices used for data collection by anthropologists *and* bioprospecting environmental scientists in Northern India, she notes that theories of gift relations are crucial in the co-constitution of human collectives and medicinal plants. Natasha Myers, taking readers to North American laboratories where the sensory capabilities of plants are studied, focuses on other aspects of plant-human relations. Her insistence that, in their engagement, there are sensory entanglements between researchers and plants is a sign of the affective turn in posthumanist anthropology, a point that is also taken up in the next article by Wakana Suzuki on how relations between cells and humans are embodied by researchers in a Japanese stem-cell laboratory. Here, the work of onomatopoeic invention is shown to trigger the mutual attachment of cells and laboratory technicians in the daily practices of culturing iPS cells.

In her concluding essay, Marilyn Strathern[3] returns to the problem of multiplicity and the question of relationality. Her stress on both the generality and specificity of relationality in anthropological thought is informed by trees, doors, bodies and insects thereby providing a tacit—and therefore even stronger—argument for a posthumanist future of our discipline.

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[3] The article was originally delivered as a keynote speech at the Japanese Society of Cultural Anthropology 50th Anniversary Conference jointly held with IUAES Inter-Congress 2014 in Chiba, Japan. Here we include the text preserving its original form as well as the comments given at the conference by Atsuro Morita and Hugh Raffles.

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